How the Web Functions

- When we hit https://www.techtonicgroup.com/ what happens? Don't focus too much on architecture (Monolithic, SOA, Microservices, etc.). Try to focus more on how the web functions.

When we hit https://www.techtonicgroup.com/ on our browser, we are telling our browser that we want to download the file stored at that location. The URL is a unique identifier that points to a specific computer or server where the file we want is stored. If we have the IP address where the computer or server storing the file we want is located then whatever device we are using (the client) can request to download information from that server. The URL is a nicer and easier way to get to the IP address of the computer where the files we want are stored. Where the actual IP address is a string of numbers, the URL https://www.techtonicgroup.com/ is like a nickname for that specific IP address so we will still get to the right address without having to remember the numbers. When we reach the correct IP address for the server that has the file we want, the browser will request to download the file which in this case is a website.

- From start to finish how does that data reach you to be rendered in the browser?

Whatever device we happen to be using and the computer or server that we are trying to get information from are both connected via a data connection over the Internet. The Internet introduced a new way of breaking files down into much smaller pieces so that they can be downloaded much faster by multiple computers at once. Once all the "pieces" of the file are downloaded, they are put back together by on the client's device so that the browser can then view and render the file.

- What code is rendered in the browser?

Webpages are written in HTML. HTML is just a simple text document. However, the text is written in a code, which the programmer writes to tell the browser how they want the browser to display information. When the browser on the client device navigates to a URL, the URL directs to the IP address for the server where the HTML file is stored. The client downloads the HTML file and the browser is then able to read and interpret the code written in the HTML file and display it visually for the user, based on the way the programmer instructed the information to be presented through the code.

- What is the server-side code's main function?

The server side code's main function is to determine what information is sent to the user. The information can be tailored to an individual user. Think Netflix.com, the server-side code determines what movies and TV shows to display based on your user preferences and the items in your watch list.

- What is the client-side code’s main function?

The client-side code’s main function is to determine how to display the information. Using the example of Netflix.com again, the client side tells the browser where on the webpage your watch list will be displayed, or where to show the navigation bar. Where the server-side code is determining what information to display, the client-side code is determining how and where it will be displayed visually on the page.

- How many instances of the client-side assets (HTML, CSS, JS, Images, etc.) are created?
- How many instances of the server-side code are available at any given time?
- What is runtime?
- How many instances of the the databases connected to the server application are created?